

MR-09

Delta-Wide Crevasses

Summary Data and Graphics



Barmore, J. 2003. *MR-09 Delta-Wide Crevasses Summary Data and Graphics*, Louisiana Department of Natural Resources, Coastal Restoration Division, Baton Rouge, Louisiana 84pp.

MR-09 Delta-Wide Crevasses

Project Overview

- This project is located in the lower Mississippi River Delta and utilizes the formation of crevasse splays to create subaerial land.
- Crevasses are breaks in the levee that allow overbank deposition of sediments to occur in adjacent interdistributary receiving bays.
- This deposition of sediments causes land formation that is controlled by the processes of distributary mouth-bar islands.



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Project Overview

- The project consists of maintaining presently existing crevasse channels, the construction of new crevasse channels, and future maintenance of selected crevasse channels in both Pass-A-Loutre Wildlife Management Area (PALWMA) and Delta National Wildlife Refuge (DNWR).
- The twenty year project is to be implemented in a series of mobilizations every five years. At the close of each mobilization cycle the project will be re-evaluated to determine the effectiveness of existing crevasses to the project area. The first phase of construction took place in 1999 and the following actions were taken :



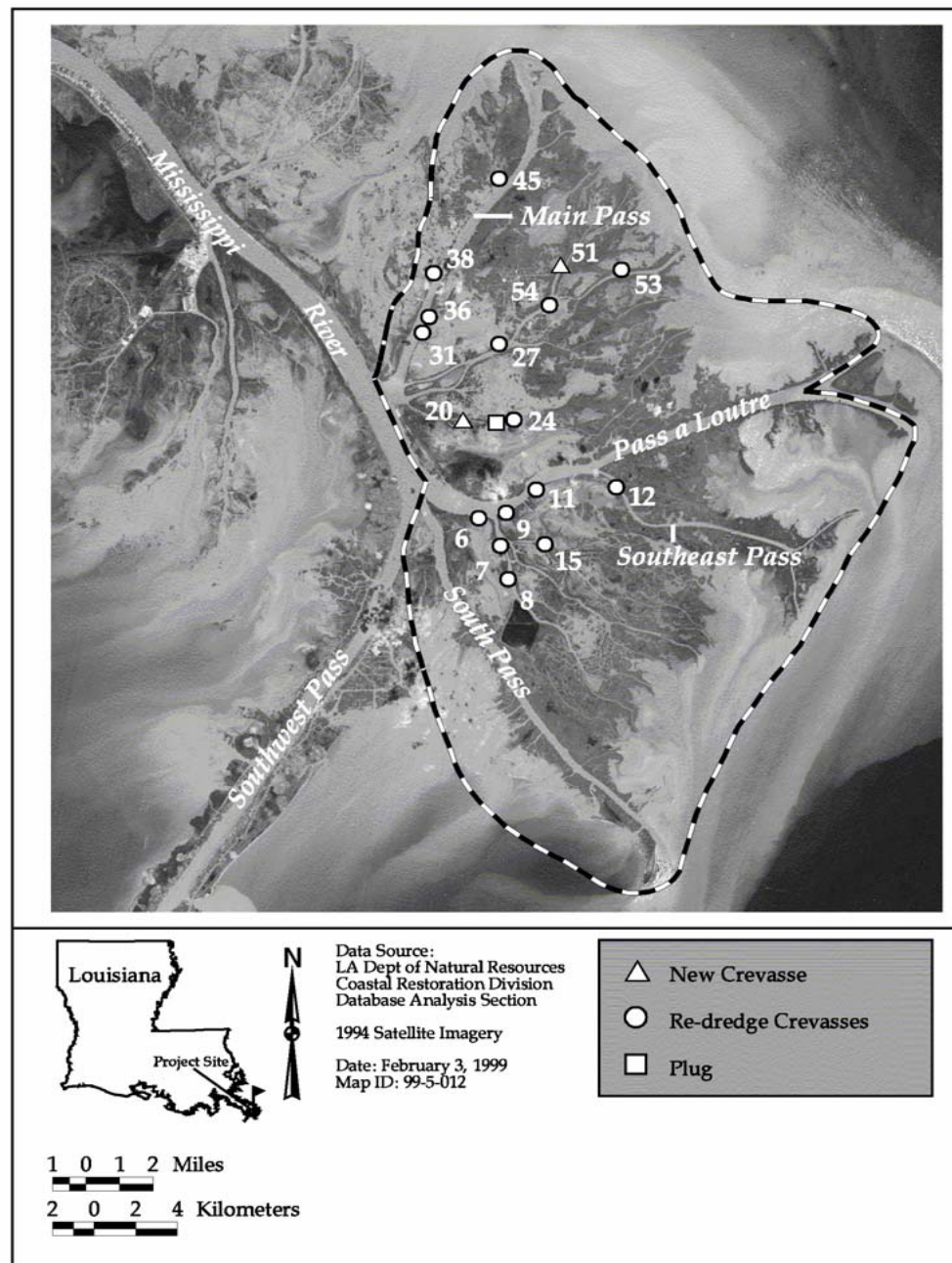
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Project Overview

1. Created 1 new crevasse channel in the Delta National Wildlife Refuge
2. Re-dredged 11 existing crevasses located in DNWR (5) and PALWMA (6), according to their needs, either by increasing their width, depth, or angle of opening.
3. A plug was constructed in an existing crevasse north of Raphael Pass to increase flow to the crevasse splay downstream.



Figure 1. Map of Crevasses for Phase I of Delta-Wide Crevasses. Includes new crevasses, re-dredged crevasses, and a plug.



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- Primary Objective

Promote the formation of emergent freshwater and intermediate marsh in shallow open water areas through the construction of new and maintenance of new and existing crevasse-splays.

- Specific Goals

The following goals will contribute to the evaluation of the above objective:

1. Maintain or increase land to open water ratio within the receiving bays.
2. Increase mean elevation of the receiving bays.
3. Increase the mean percent cover of emergent fresh and intermediate marsh type vegetation in the receiving bays.



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- Monitoring Elements

Aerial Photography: To evaluate land to water ratios in the individual receiving bays, near vertical, color infrared aerial photography (1:24,000 scale, with ground controls) will be obtained in January 2001 (as-built) and in 2002, 2007, 2012, and 2017 post-construction.

Elevation: To document changes in mean elevation within the receiving bays related to the creation of subaerial land, elevational transect lines will be established across the receiving bays at 12 sites. Elevations will be recorded at 500-ft intervals along each transect and at any significant change in elevation within those intervals. Elevation surveys will be conducted as-built (2000) and during years 2002, 2007, 2012, and 2017 post-construction.

Vegetation: Plant species composition, percent cover, and relative abundance will be evaluated to document vegetation succession on the receiving bays and to ground-truth aerial photograph interpretations. Vegetation samples will be conducted in the late summer (mid-July to August) in 1999 (as-built) and in the post-construction years designated for aerial photography, years 2002, 2007, 2012, and 2017.



MR-09 Delta-Wide Crevasses Elevation

- 2000 as-built elevation survey transect lines
- Elevation contour maps – TIN models
- Crevasses: 6, 7, 8, 9, 11, 12, 15, 20, 31, 36, 38, 51.
- Mean and Median Elevation Table



Figure 2. Map of Delta-Wide Crevasses including all Topographic and Bathymetric survey points. Also highlighted are all 12 crevasses.

